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| **Unit Title #1**: Percent/Expressions  **Grade Level/Course**: 8th Grade Math |
| **Common Core State Standard:** The Number System/Expressions and Equations **/**Ratio & Proportional Relationships  8EE1,8NS1,7RP3  **New York State Standards**  8N2, 8PS8, 8N3, 8N5,8N5 |
| **Essential Questions**:   * How is a problem simplified with negative exponent? * How do we best represent the part to whole relationship? * When is estimation better than counting and when is it not? * How do you calculate the percentage discount of your merchandise in dollars and cents from the original cost of the merchandise to include 7% sales tax? |
| **Content**:  Students link concepts and procedures as they develop and use computational techniques, including estimation, mental arithmetic, paper-and-pencil, calculators, and computers, in problem-solving situations and communicate the reasoning used in solving these problems  Conversion of rational numbers to decimals, then to percents, percents to decimals, and then to rational numbers. |
| **Skills:**   * Uses fractions, decimals, and percents interchangeably * Recognizes equivalent representations of fractions, decimals, and percents. * Compares and orders real numbers including:   Fractions and decimals   * Using percents, solves practical problems such as: * Determining sales tax * Determining sales price * Determining discount * Determining percent increase and percent decrease * Solves problems, reasons, and estimates including: * Selecting and using appropriate problem solving strategies * Selecting and using appropriate tools in problem solving * Using appropriate estimation strategies to check reasonableness of results * Solving non-routine problems for which the answer is not obvious * Relating concepts and skills to practical applications. |
| **Assessments(s):**  Unit#1 exam  Quizzes  Portfolio Pieces  Teacher Observations  Self Reflections/Journal Writing  Cooperative Learning Projects |
| **Activities:**  Create your own Restaurant Menu  Going Shopping |
| **Materials and Resources:**  Leveled Lesson Resources Impact Math Chapters 3  Resource Masters (Impact Math)  Green Hot Topics  [www.glencoe.com](http://www.glencoe.com) |
| **Vocabulary/Specialized terms**:  Simplify, evaluate, percent, tax rate, discount, percent increase, percent decrease, sale price, commission, interest rates, gratuities, estimation, quantity, identify and greater than. |

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| **Unit Title #2** Linear Relationships  **Grade Level/Course**: 8th Grade Math |
| **Common Core State Standard:** Functions, Geometry & Expressions  F4,F5  G6,G7,G8,G9,EE3  **New York State Standards**  7A7, 7A8,7A10,8A3,8A4,8A15,8A16,8CN4,8PS4,8PS6 |
| **Essential Questions**:   * How do we best represent a pattern? * What can patterns reveal? * What are three examples of non-linear equations? * How can the rate of change be found in various representations of linear data? |
| **Content**:   * Construct a table of x- and y-values satisfying a linear equation and construct a graph of the line on the coordinate plane * Solve and graph solutions of multi-step linear equations. * Number sentences describe relationships between inputs and outputs * Represent the *nth* term in a pattern as a formula and test the representation |
| **Skills:**   * Calculate and interpret the meaning of the slope of a linear equation. * Compare and order integers. * Simplify algebraic expressions by grouping together and adding like terms. * Create x and y table * Graph coordinates from a table on a coordinate graph |
| **Assessments(s):**  Unit#2 exam  Quizzes  Portfolio Pieces  Teacher Observations  Self Reflections/Journal Writing  Cooperative Learning Projects |
| **Activities:**  Linear Designs or drawings  Algebraic Relationship in the real world (Linear Project) |
| **Materials and Resources:**  Leveled Lesson Resources Impact Math Chapters 8 Resource Masters (Impact Math)  Green Hot Topics  [www.glencoe.com](http://www.glencoe.com) |
| **Vocabulary/Specialized terms**:  Combine like terms, integers, linear equations, non-linear equations, x-axis, y-axis,  coefficient, evaluate, simplify, rate of change, graphs, coordinate plane |

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| **Unit Title #3** Exponents  **Grade Level/Course**: 8th Grade Math |
| **Common Core State Standard:** Geometry  G6,G7,G8,G9,EE3,EE4  **New York State Standards**  7G6,7G8,7G9,8PS14,8N1,8N2,8A6 |
| **Essential Questions**:   * How is multiplying polynomials different from adding them? * How can GCF and LCM be used to simplify algebraic expression?   What do you do differently when finding the degree of a monomial versus finding the degree of binomial or trinomial? |
| **Content**:   * Interpret, combine and calculate exponents and radicals * Square Roots for cubed roots |
| **Skills:**   * Simplify expressions * Multiply * Combine integers |
| **Assessments(s):**  Unit#3 exam  Quizzes  Portfolio Pieces  Teacher Observations  Self Reflections/Journal Writing  Cooperative Learning Projects |
| **Activities:**  Foldables  Exponent Game |
| **Materials and Resources:**  **Leveled Lesson Resources Impact Math Chapters 4 Resource Masters (Impact Math)**  Green Hot Topics  [www.glencoe.com](http://www.glencoe.com) |
| **Vocabulary/Specialized terms**:  Law of Exponents, positive & negative integers, scientific notation and square roots,  Simplify, multiply, factor, base, term, power, radicals |

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| **Unit Title:#4** Expressions & Binomial  **Grade Level/Course**: 8th Grade Math |
| **Common Core State Standard:** Expressions and Equations  EE1  **New York State Standards**  8A5,8A7,8A8,8A9,8A10,8A11 |
| **Essential Questions**:   * How can GCF and LCM be used to simplify algebraic expression? * How can you justify different expressions representing the same quantity? * What could the algebraic expression help you determine about a real life situation? |
| **Content**:   * Many different expressions can represent the same quantity * Polynomials |
| **Skills:**   * Combining like terms * Classify polynomials * Multiplying polynomials * exponents |
| **Assessments(s):**  Unit#4 exam  Quizzes  Portfolio Pieces  Teacher Observations  Self Reflections/Journal Writing  Cooperative Learning Projects |
| **Activities:**  Foldables  Flipbook |
| **Materials and Resources:**  Leveled Lesson Resources Impact Math Chapter 5 Resource Masters (Impact Math)  Green Hot Topics  [www.glencoe.com](http://www.glencoe.com) |
| **Vocabulary/Specialized terms**:  Terms, degrees, binomial, one variable  - polynomial, one variable, evaluation, classify |

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| **Unit Title #5** Lines & Angles  **Grade Level/Course**: 8th Grade Math |
| **Common Core State Standard:** Geometry  8G5,8G1B  **New York State Standards**  8G1,8G2.8G3,8G4,8G5,8A12 |
| **Essential Questions**:   * How are angles used in everyday life? * How can I identify adjacent angles? Vertical angles? * When are angles considered complimentary? Supplementary? * How are angle relationships used to find missing angle measurements? |
| **Content**:   * Relationship between the angles formed by parallel lines and transversals. * Use problem-solving skills to determine any angle measure to determine how lines are related to each other whether given points or linear equations (parallel, perpendicular, same line, intersecting). * Write the equations of lines based on how they are related to other lines. |
| **Skills:**   * Define and apply understanding of vertical, adjacent, corresponding, alternate interior, complementary and supplementary angles * Measure an angle * Solve Equations * Identify vertical, adjacent, complementary, and supplementary angles and understand their relationships |
| **Assessments(s):**  Unit#5 exam  Quizzes  Portfolio Pieces  Teacher Observations  Self Reflections/Journal Writing  Cooperative Learning Projects |
| **Activities:**  City Angles  Geometry Street Map |
| **Materials and Resources:**  Leveled Lesson Resources Impact Math Chapters 2 Resource Masters (Impact Math**)**  Green Hot Topics  [www.glencoe.com](http://www.glencoe.com) |
| **Vocabulary/Specialized terms**:  Parallel Perpendicular Intersecting  Same line Transversal Vertical angles  Linear pair Alt. interior angles Alt. exterior angles  Corresponding Converse  Slope |

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| **Unit Title #6** Measurement  **Grade Level/Course**: 8th Grade Math |
| **Common Core State Standard:** Geometry  8G6,8G7.8G8,7G1  **New York State Standards**  7M1,8PS10,8PS15,8CN3,7M5,7M6,7M7,8M1 |
| **Essential Questions**:   * How does what we measure influence how we measure? * How do we convert measurement unit and scales? * How does fluency with customary and metric systems of measurement improve accuracy in solving problems? |
| **Content**:   * Construct, interpret and use scale drawings in real-life situations * Similarity and indirect measurement |
| **Skills:**   * Use proportions to solve for unknown sides * Create scale drawings * Analyze and interpret scale drawings * Make predictions using scale drawings * Using proportions in real-life problems * Cross-multiply |
| **Assessments(s):**  Unit#6 exam  Quizzes  Portfolio Pieces  Teacher Observations  Self Reflections/Journal Writing  Cooperative Learning Projects |
| **Activities:**  Flipbook  Scale Drawing Project |
| **Materials and Resources:**  **Leveled Lesson Resource Masters (Math Advantage)**  Green Hot Topics  [www.glencoe.com](http://www.glencoe.com) |
| **Vocabulary/Specialized terms**:  Scale factor, construct, scale drawing, scale model, customary unit, metric unit |

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| **Unit Title #7** Inequalities  **Grade Level/Course**: 8th Grade Math |
| **Common Core State Standard:** Expressions & Equations  7EE    **New York State Standards**  8A1,8PS9 |
| **Essential Questions**:   * How do we translate verbal ideas to the language of mathematics? * How do you determine and understand errors in math? * How do your derive solutions to equations and inequalities? * How can inequalities help you describe relationships? * How much is enough? How much is too much? |
| **Content**:   * Identify and graph various inequalities * Create and interpret pictorial and concrete representations and   justifications for solving inequalities. |
| **Skills:**   * Solving one step equations * Solving two-step equations |
| **Assessments(s):**  Unit#7 exam  Quizzes  Portfolio Pieces  Teacher Observations  Self Reflections/Journal Writing  Cooperative Learning Projects |
| **Activities:**  Inequality Flipbook |
| **Materials and Resources:**  Leveled Lesson Resources Impact Math Chapters 7 Resource Masters (Impact  Math)  Leveled Lesson Resources Impact Math Chapters 5 Resource Masters (Impact Math)  Green Hot Topics  [www.glencoe.com](http://www.glencoe.com) |
| **Vocabulary/Specialized terms**:  Inequality, equation, variable, more than, less than, symbols, |

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| **Unit Title #**8 Transformation/Multi-step linear inequalities  **Grade Level/Course**: 8th Grade Math |
| **Common Core State Standard:** Geometry  8G2,8G4,8G1 (A-C),8G3  **New York State Standards**  8PS1,8G10,8G11,8G12,8PS2,8RP2,8A13,8A14 |
| **Essential Questions**:   * How many degrees do we need to rotate a point to get to the same point? * Can a dilation move a two dimensional object? * How do your derive solutions to equations and inequalities? |
| **Content**:   * Predict, draw and discuss the resulting changes in lengths, orientation, and angle measures that occur in figures under a similarity transformation (dilation) * Predict and draw the resulting changes in lengths, orientation, angle measures, and coordinates when figures are translated, reflected across horizontal or vertical lines, and rotated on a grid * To show imbalance. To solve an inequality, we carry out the exact same steps as if it were an equation, keeping the inequality symbol intact. Linear inequalities involve expressions which are lines, or linear equations. These inequalities are solved much the same way as equations with one key difference. |
| **Skills:**   * Determine the angles after translation, rotations and reflections * Graph on a coordinate plane * Determine placement of points that are reflected, rotated or translated on a coordinate plane * Solve inequalities * Graphing solution sets |
| **Assessments(s):**  Unit#8 exam  Quizzes  Portfolio Pieces  Teacher Observations  Self Reflections/Journal Writing  Cooperative Learning Projects |
| **Activities:**  Dilation project tessellation project  Logo Design |
| **Materials and Resources:**  Leveled Lesson Resources Impact Math Chapters 6 Resource Masters (Impact Math**)**  Green Hot Topics  [www.glencoe.com](http://www.glencoe.com) |
| **Vocabulary/Specialized terms**:  Dilation, image, line of reflection, line of symmetry, line symmetry, reflection over a line, reflection symmetry, rotation, rotation symmetry, transformation, translation |

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| **Unit Title #9** Slope-Intercept Form  **Grade Level/Course**: 8th Grade Math |
| **Common Core State Standard:** Geometry/Functions  8G5,8G6,EE6,F1,F2,F3,F5  **New York State Standards**  8G13,8G14,8G15,8G16,8G17,8A18 |
| **Essential Questions**:   * How is the slope-intercept form and how can it be used to draw the line it represent? * How do you determine the y-intercept of the graph of an equation? |
| **Content**:   * Understanding slope as steepness as opposed to rate of change * Relating linear equations to graphing * Represent algebra in different ways |
| **Skills:**   * Locate points on a graph * Locate the y-intercept * Writing an equation * Simplify * Substitution of the slope, m * Substitution of the y-intercept for b * Calculate and interpret the meaning of the slope of a linear equation. |
| **Assessments(s):**  Unit#9 exam  Quizzes  Portfolio Pieces  Teacher Observations  Self Reflections/Journal Writing  Cooperative Learning Projects |
| **Activities:**  Slope project Line graph project |
| **Materials and Resources:**  Leveled Lesson Resources Impact Math Chapters 1 Resource Masters (Impact Math)  Green Hot Topics  [www.glencoe.com](http://www.glencoe.com) |
| **Vocabulary/Specialized terms**:  Equation of a line, grid, y-intercept, slope, illustration, variable, steepness |

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| **Unit Title #**10 Functions & Graphs  **Grade Level/Course**: 8th Grade Math |
| **Common Core State Standard:** Functions/Expressions & Equations  F1,EE8  **New York State Standards**  8A17,8A18,8A,19,8G18,8G19,8G20,8G21 |
| **Essential Questions**:   * How do you define and represent functions?   How do you determine and use properties of quadratic functions? |
| **Content**:   * Identify the domain and range for a linear relation when given   a set of ordered pairs, a table, a mapping, or a graph.   * Identify whether or not a linear relation is a function and justify   the classification. Data may be presented as a set of ordered  pairs, a table, a mapping, or a graph.   * Compare and contrast relations and functions * Determine properties of a function, such as, domain and range. |
| **Skills:**   * Turn input/output tables into graphs, equations and statements * Identify a function by its graph * Identify a function by its input/output table |
| **Assessments(s):**  Unit#10  exam  Quizzes  Portfolio Pieces  Teacher Observations  Self Reflections/Journal Writing  Cooperative Learning Projects |
| **Activities:**  Making a budget Using algebra to choose a cell phone plan |
| **Materials and Resources:**  Leveled Lesson Resources Impact Math Chapters 10 Resource Masters (Impact Math)  Leveled Lesson Resources Impact Math Chapters 1 & 10 Resource Masters (Impact Math)  Green Hot Topics  [www.glencoe.com](http://www.glencoe.com) |
| **Vocabulary/Specialized terms**:  Domain, range, function, x-intercept |